Declaration of Hooman Noorchashm MD, PhD.

Introduction

1. The purpose of COVID-19 vaccination is to induce protective, antigen-specific immunity to SARS-CoV-2. It is thus achievement of adequate *immunity* to the virus, and not vaccination, *per se*, that is the primary and true objective of our national vaccine strategy to combat the COVID-19 pandemic.

2. Accordingly, to best protect Americans against infection, there is only one justifiable reason for *mandating vaccination* of COVID-recovered individuals who demonstrate the existence of antigen-specific immunity to SARS-CoV-2: that is, if their immunity from a natural infection is *clinically inferior* to the immunity induced through COVID-19 vaccination in previously uninfected persons. For if acquired immunity from infection is clinically equivalent to that induced by vaccine immunity, and very certainly if vaccination is inferior in inducing protective immunity against SARS-CoV-2 infection, then it is a violation of medical ethics and individual bodily autonomy to force vaccination on the unwilling subset of naturally immune persons by threatening their livelihoods. (*See* Noorchashm Decl. ¶¶ 8-12).

To Only *Assume* That Immunity Acquired from Natural Infection Is Inferior to That Acquired through Vaccination Is Incorrect

3. It is a fundamental error to *assume* that acquired natural immunity to SARS-CoV-2 in COVID-recovered persons is clinically inferior to full vaccination in COVID-naïve persons. In fact, as I will establish in this declaration, the weight and preponderance of the evidence clearly points to equivalency, if not inferiority of vaccination when compared to acquired immunity from a natural infection.

4. When assessing the clinical *equivalency* of vaccination vs. natural infection, the only metric that can correctly be used is the said group's *clinical susceptibility to subsequent COVID-19 infection*. For example, "fully vaccinated" individuals may harbor a larger quantity of antibodies against SARS-CoV-2 than those who are naturally infected. Indeed, this has been my clinical experience when evaluating the COVID-19 antibody serologies of many fully vaccinated patients. This observation, however, *does not* imply superiority of *clinical protection* against subsequent infection in the vaccinated with more antibodies – nor does it imply a more durable and diverse immune response to the virus in the vaccinated. In fact, the basic science of immunology predicts that an immune response to the whole of the SARS-CoV-2 virus, as occurs via natural infection, would be more diverse and long-standing than vaccination against any one particular protein (i.e., the Spike antigen used in the COVID-19 vaccines). The reality of this last point was demonstrated in a recent very robust epidemiological paper from Israel, reviewed below, where it is demonstrated that naturally immune persons are 27 times more protected than fully vaccinated persons from subsequent infection by SARS-CoV-2.

5. When contemplating MSU's vaccine mandate as applied to immune, COVID-recovered persons *against their wishes*, and especially when a loss of employment is being threatened by the state or its affiliates, the correct comparisons must be considered.

6. It is incorrect and irrelevant to claim that any *additional* level of protection afforded the subset/class of COVID-recovered persons by an added vaccination justifies a mandate. Vaccine mandates, as applied to those with naturally acquired immunity, rest on the false presumption that they are less protected than vaccinated individuals who are COVID-naïve and have no naturally acquired immunity.

7. While encouraging "bullet-proofing" of either the naturally immune or the previously vaccinated via the use of booster shots might make sense for some, adding such marginal level of immunity protection ought to remain in the sphere of individual choice, not state mandate.

8. Dr. Zervos cites a study by Deng et al., *Transmission, infectivity, and neutralization of a spike L452R SARS-CoV-2 variant* (June 24, 2021), https://pubmed.ncbi.nlm.nih.gov/33991487/ (Zervos Decl. ¶ 39), which is one of several demonstrating that booster vaccination in persons with acquired natural immunity leads to an increase in blood antibody levels. Another such study was conducted by Leonidas Stamatatos, et al., *mRNA vaccination boosts cross-variant neutralizing antibodies elicited by SARS-CoV-2 infection* (Mar. 25, 2021). Though both studies demonstrate that booster vaccination in the COVID-recovered and already immune could lead to an increase in antibody levels, it is a serious scientific, analytical and clinical error to conflate this increase in bloos antibody levels with the unsubstantiated theory that vaccination of COVID-recovered individuals is needed to achieve immunity equivalent to that attained through vaccination of COVID-naïve persons.

COVID- Recovered Individuals Enjoy Protection at Least Equivalent to That Achieved Through Full Vaccination

9. Goldberg, *et al.* released a study from Israel—a nation that undertook a massive vaccination campaign.[1] During the study period, previously infected individuals were explicitly excluded from vaccination.

10. This methodology allowed for a large volume of participants and prospective comparison of COVID-naive vaccinated individuals to COVID-recovered unvaccinated individuals.

[1] Goldberg, et al.: Yair Goldberg, Micha Mandel, Yonatan Woodbridge, Ronen Fluss, Ilya Novikov, Rami Yaari, Arnona Ziv, Laurence Freedman, Amit Huppert "Protection of previous SARS-CoV-2 infection is similar to that of BNT162b2 vaccine protection: A three-month nationwide experience from Israel." *medRxiv* 2021.04.20.21255670; doi:

11. The overall study population included 6.3 million individuals 18 years and older and utilized a dynamic cohort model that accounted for individuals' progression through first dose to full vaccination status. The statistical methodology was robust, executing a Poisson regression, and adjusting for age, gender, prior PCR test results, and municipal risk. Overall, the results found excellent vaccine efficacy in the *not previously infected, vaccinated* (NPI/V) group of 92.8%, 94.2%, 94.4% and 93.7% against infection, hospitalization, severe illness and death, respectively.

12. However, protection in the *previously infected and unvaccinated* (PI/UV) cohort was superior, with 94.8%, 94.1%, 96.4% against infection, hospitalization and severe illness.. The trend of superior protection acquired from natural immunity held up across every age range, for all severities of illness. Additionally, this study was conducted during the Israeli surge of the B.1.1.7 (Alpha) variant, suggesting robust natural immunity to variants.

13. Shrestha *et. al*. performed an observational study in the context of occupational health, set at the Cleveland Clinic, OH, USA.[2] A total of 52,238 employees were enrolled, of which 2,579 had recovered from a SARS-CoV-2 infection. Of these individuals, 53% remained unvaccinated during the course of the observation period.

14. Throughout the entire study, not a single previously infected individual (0%) presented with reinfection, regardless of vaccination status – that is, *previously infected and vaccinated* (PI/V) or *previously infected and unvaccinated* (PI/UV). Consequently, the risk reduction by previous infection was effectively 100%. Conversely, the *not previously infected and vaccinated* (NPI/V) cohort had a breakthrough of 0.7%. As expected, the vast majority of individuals who tested positive were in the *not previously infected and unvaccinated* (NPI/UV) cohort.

[2] Shrestha *et al.:* Nabin K. Shrestha, Patrick C. Burke, Amy S. Nowacki, Paul Terpeluk, Steven M. Gordon, "Necessity of COVID-19 vaccination in previously infected individuals," *medRxiv* 2021.06.01.21258176; doi: https://doi.org/10.1101/2021.06.01.21258176,

15. Lumley, *et al.* represents a high-quality observational cohort study, performed at Oxford University Hospitals, that evaluated the incidence of SARS-CoV-2 reinfection in 13,109 HCWs, stratified by serological and vaccination (one and two doses) status.[3] Of note, this study coincided with the B.1.1.7 surge (Alpha) in the United Kingdom.

16. There were a total of 327 infections in the study group, with 326 infections occurring in the seronegative unvaccinated or partially vaccinated group, and only one reinfection in the seropositive group. There were no infections in the vaccinated, seronegative group.

17. The authors calculated a 90% and 85% risk reduction for vaccination in seronegative and seropositives, respectively, without statistical difference [P=0.96]). Additionally, the authors conducted a study on viral loads in symptomatic infection and found the pre-vaccination cohort with evidence of established immunity had the lowest viral loads in infected persons across the study. The authors concluded that "Natural immunity resulting in detectable anti-spike antibodies and two-dose vaccine does both provide robust protection against SARS-CoV-2 infection, including the B.1.1.7 variant".

18. Cavanaugh, *et al.* presented a case-control study from Kentucky.[4] Dr. Zervos appears to posit that this study justifies individuals with naturally acquired immunity receiving a vaccine by mandate. That is an incorrect understanding of the study's results.

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[3] Lumley, *et al.*: Lumley SF, Rodger G, Constantinides B, Sanderson N, Chau KK, Street TL, O'Donnell D, Howarth A, Hatch SB, Marsden BD, Cox S, James T, Warren F, Peck LJ, Ritter TG, de Toledo Z, Warren L, Axten D, Cornall RJ, Jones EY, Stuart DI, Screaton G, Ebner D, Hoosdally S, Chand M, Crook DW, O'Donnell AM, Conlon CP, Pouwels KB, Walker AS, Peto TEA, Hopkins S, Walker TM, Stoesser NE, Matthews PC, Jeffery K, Eyre DW. "An observational cohort study on the incidence of SARS-CoV-2 infection and B.1.1.7 variant infection in healthcare workers by antibody and vaccination status." *Clin Infect Dis.* 2021 Jul 3:ciab608. doi: 10.1093/cid/ciab608. Epub ahead of print. PMID: 34216472.

[4] Cavanaugh, *et al.*: Cavanaugh AM, Spicer KB, Thoroughman D, Glick C, Winter K. Reduced Risk of Reinfection with SARS-CoV-2 After COVID-19 Vaccination - Kentucky, May-June 2021.

19. The study used a linked state infection and vaccination databases, reconciled by name and date of birth. The authors identified 246 total "case" reinfections in May and June 2021, drawn from all Kentucky residents aged ≥18 years, with a positive SARS-CoV-2 test in 2020. Case-patients were then matched 1:2 to a control (492 individuals) consisting of non-reinfected patients, based on sex, age, and date of initial positive test. Unvaccinated individuals accounted for 72.8% of case-patients, whereas only 57.7% of the controls were unvaccinated. This calculates to an adjusted odds ratio (OR) of 2.34 (95% CI 1.58-3.47). The authors suggest, that "among persons with previous SARS-CoV-2 infection, full vaccination provides additional protection against reinfection."

20. While Cavanaugh *et. al.* was specifically designed to assess for superiority of vaccination versus non-vaccination in previously infected individuals, the study had several limitations. First, the study represents a single-state experience drawing only 246 reinfected patients in May and June of 2021 (out of potentially 275,000 eligible), based upon a database matching algorithm, by which inefficient matching (e.g., duplicate names, incomplete records, etc.) could lead to disproportionate selection bias in this small sample.

21. Second, the control group was not confirmed "test-negative," and vaccinated individuals (symptomatic or asymptomatic) may be less inclined to get tested. Consequently, the case and control groups are not matched according to their likelihood of getting tested, which is a critical confounder.

22. Third, case matching was only performed on the basis of age, gender, and month of previous infection; however, there are a number of other salient parameters that should have been

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MMWR Morb Mortal Wkly Rep. 2021 Aug 13;70(32):1081-1083. doi: 10.15585/mmwr.mm7032e1. PMID: 34383732; PMCID: PMC8360277.

addressed. For example, race, socioeconomics, and geography are all variables that could impact whether someone gets vaccinated and/or gets tested.

23. Fourth, only reinfections reported in May and June of 2021 were used to identify case subjects, even though vaccinations were made available beginning December 2020.

24. Satwik, *et al.* reported a small observational study, performed on HCWs at one tertiary hospital in New Dehli, India, where primarily the Astra-Zeneca (ChAdOx1 nCov-19) vaccination was available for 4,296 employees.[5] The authors report an effectiveness of 93% [95% CI 87-96%] versus two does vaccination efficacy of 24% [95% CI 6-38%], for all symptomatic infections. For moderate to severe disease, the effectiveness of previous infection was 89% [95% CI 57 to 97] versus 65% [95% CI 42-79%] for two-dose vaccination. There were no deaths in the previous infection or two-dose cohort. This study is notable for its setting during the B.1.617.2 (Delta) variant surge, experienced in India during this time. A separate study performed simultaneously at this institution noted approximately a 50% penetration of the Delta variant. The underwhelming vaccine efficacy observed in this study aligned with others pertaining to the Delta variant during the same observation period [28]. The limitations of this study are its relatively small size within a group of HCWs, lack of adjustments for basic demographics, testing of symptomatic individuals only, and primary use of the ChAdOx1 nCov-19 vaccine, which differs from other studies in this review. Nevertheless, the authors conclude that "[previous infection offered] higher protection than that offered by single or double dose vaccine."

[5] Satwik, *et al.:* Satwik R, Satwik A, Katoch S., Saluja S, "ChAdOx1 nCoV-19 Effectiveness During An Unprecedented Surge In Sars Cov-2 Infections*" European Journal of Internal Medicine*, August 15, 2021DOI:https://doi.org/10.1016/j.ejim.2021.08.005.

25. Gazit, *et al.* recently presented a retrospective observational study, with a matched cohort analysis, in Israel during the Delta surge.[6] The authors defined three groups: (1) never infected and two doses of vaccination (Pfizer), (2) previously infected and never vaccinated, and (3) previously infected and one dose of vaccination (Pfizer).

26. These groups then underwent a matched cohort comparison, controlling for age, gender, geographic area, and socioeconomic status. When comparing the vaccinated COVID-naive group with the unvaccinated COVID-recovered in a matched timing analysis, they found a 13.06 (95% CI 8.08-21.11, P<0.001) increased risk of infection in the vaccinated cohort. For symptomatic infections only, the risk increased to 27.02-fold [95%CI12.7-57.5]). When time matching was removed, there still was a 5.96 [95% CI 4.85-7.33, P<0.001] increased risk of infection in the vaccinated no prior infection group.

27. Finally, the researchers compared vaccination to non-vaccination in previously infected individuals, and found a 0.53-fold risk reduction (95%CI 0.3-0.92, P<0.05). However, the absolute risk reduction was only 0.1% (17 cases/14,029 subjects). Similarly, for symptomatic individuals the risk was reduced 0.68-fold (95%CI 0.38-1.21) with an absolute risk reduction of 0.04%, without reaching statistical significance. The authors bluntly conclude, "This study demonstrated that natural immunity confers longer lasting and stronger protection against infection, symptomatic disease and hospitalization caused by the Delta variant of SARS-CoV-2, compared to the BNT162b2 two-dose vaccine-induced immunity . . . [the previously infected] given a single dose of the vaccine gained additional protection against the Delta variant."

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[6] Gazit, *et al.:* Sivan Gazit, Roei Shlezinger, Galit Perez, Roni Lotan, Asaf Peretz, Amir Ben-Tov, Dani Cohen, Khitam Muhsen, Gabriel Chodick, Tal Patalon "Comparing SARS-CoV-2 natural immunity to vaccine-induced immunity: reinfections versus breakthrough infections" *medRxiv* 2021.08.24.21262415; doi: https://doi.org/10.1101/2021.08.24.21262415.

28. The Gazit *et. al.* study was designed to specifically answer pertinent clinical questions, using a robust methodology and adjustments. The strength of the study is the size of the cohorts and its matched design, allowing for multivariable adjustments. The limitations of the study include its applicability primarily to the Delta variant and Pfizer vaccine only. As the authors only reported total events without respect to time, there could be time-varying complicating factors that alter the result.

29. The conclusion from the above-reviewed studies is that there is no advantage to vaccination of the COVID-19 recovered in comparison to the vaccinated but COVID naive. Also, though vaccination in the COVID-recovered may provide some incremental protective benefit, the size of this benefit is medically marginal. To be clear, it is not my opinion that COVID-naïve individuals should seek infection as a means of achieving immunity and to bypass vaccination – because the morbidity/mortality cost of so doing is prohibitive. *However, these studies and the fundamentals of immunological science should compel our various levels of government as well as American corporations to accept that COVID-recovered individuals are at least equally protected from subsequent infection as their vaccinated COVID-naïve counterparts.*

Many Leaders in the Field Recognize the Efficacy of Naturally Acquired Immunity to SARS-CoV-2

30. Professor Paul Offit of the Children's Hospital of Philadelphia is widely considered to be the leading international expert in the immunology of vaccines. He also serves as an influential member of the FDA's Vaccines and Related Biological Products Advisory Committee. Dr. Offit is known for being an advocate of vaccines.

31. Dr. Offit has several times explicitly stated that naturally acquired immunity to SARS-CoV-2 is highly effective at preventing reinfection.[7]

32. Two large health systems in the US have elected to accept a history of COVID-recovery and acquired antibody immunity as grounds for exemption from a vaccine requirement: Kettering Health in Ohio, and Spectrum Health in Michigan.

33. Most European countries are following protocols set out in the "EU COVID-19 Certificate," exempting those with naturally acquired immunity from vaccine requirements.

Forcing Ms. Norris to Undergo Vaccination as a Condition of Continued Employment, in the Setting of a Prior COVID Infection is Unscientific and Unethical

34. In my previous declaration to the court, I attested that Ms. Norris' level of antibody immunity to SARS-CoV-2 Spike protein falls within the distribution range of the hundreds of COVID-recovered Americans whose COVID-19 serologies I have evaluated as an immunologist and physician at this point in time. (*see* Noorchashm Decl. ¶ 7).

35. There is no reason to believe that she presents a higher risk of re-infection than any other COVID-recovered individual or any fully vaccinated individual. Nor is there any reason to believe that as a COVID-recovered and already immune person she poses any higher a risk of infecting any member of her community than a fully

36. In my opinion, it is not clinically or ethically justifiable for MSU, or any other state or federal agency, to force vaccinations on COVID-recovered Americans with serological evidence of natural immunity. Because such vaccination represents a medically unnecessary treatment (as described above), any adverse event or complication associated with vaccination – a known feature

[7] (1) https://www.youtube.com/watch?v=v8eOQSRVh_s&t=460s;
(2) https://www.youtube.com/watch?v=2JecWxAxwL8&t=1s;
(3) https://www.youtube.com/watch?v=zR1eHMekNdI

of any vaccine or medical treatment – unnecessary medical treatments are best classified as bodily harm.

37. It is true that both "fully vaccinated" and "COVID-recovered" persons will derive some marginal added benefit of protection from booster vaccination.

38. In the case of both the J&J and mRNA vaccines, we already know that efficacy rates range from 70-90%, meaning that these vaccines are anywhere from 10-30% ineffective at preventing subsequent infection. Certainly, it is abundantly clear that many vaccinated persons remain susceptible to infection (i.e., they are susceptible to "breakthrough") – albeit, apparently, with a lower intensity of COVID-19 disease.

39. Emerging data suggests that it is very likely that fully-vaccinated persons would benefit significantly from booster vaccination given the 10-30% inefficacy of inducing immunity in the existing vaccines – as well as the emerging evidence of waning vaccine immunity.

40. On the other hand, based on an analysis my colleagues and I performed, the risk reduction from booster vaccination in COVID-recovered persons is modest. This was most tangibly seen in our pooled Number Needed to Treat (NNT) analysis, which included the Cavanaugh (Kentucky) study, where 218 recovered individuals would need to be vaccinated in order to prevent one case of COVID annually. The equivalent figure for COVID-naïve individuals is only 6.5 individuals who would need to be vaccinated in order to prevent one case of COVID annually. This represents a 33.5-fold difference in the absolute effect size between COVID-naïve and COVID-recovered individuals. (*See* attached manuscript submitted for peer review on 9/14/21).

41. While it is already clear that natural immunity to COVID-19 lasts for a very long time, there is ample evidence that COVID-19 vaccine immunity is waning quickly.[8]

[8] The following papers make this point quite clearly:

42. In fact, a statistically robust recent study from Israel demonstrates that fully-vaccinated persons are nearly 27 times more susceptible to subsequent infection by the Delta variant than their COVID-recovered and naturally immune counterparts.[9] This recent study clearly indicates that the fully-vaccinated are far more susceptible to re-infection than COVID-recovered and already immune counterparts. Therefore, if anyone, it is the previously vaccinated who should be aggressively offered booster shots. Additionally, the fundamental finding of this study is that, in fact, vaccine immunity is inferior to acquired natural immunity.

43. Thus, though it may be reasonable to offer already immune Americans (i.e., either "fully vaccinated" or COVID-recovered) added booster vaccinations electively, and especially to offer this option to the vaccinated subset, where immunity seems to wane in a substantial number, the benefit derived from such added vaccination cannot serve as the basis for the current vaccine mandates being placed on Americans.

Mandating Vaccination of Individuals with Naturally Acquired Immunity Violates Principles of Medical Ethics

44. When any medical procedure or treatment is offered to any person, the prerequisite is establishment of *medical necessity* for the treatment by physicians or public health officials. Without adequate establishment of medical necessity, offering a treatment is unethical and prohibited in Western medical practice. (*See* Noorchashm Decl. ¶¶ 8-11).

45. The reason for this prohibition is that offering an unnecessary medical treatment is not only a violation of the medical ethical principle of *beneficence*, it opens the *unnecessarily* treated patient

(1) https://www.science.org/doi/10.1126/science.abf4063
(2) https://www.nature.com/articles/d41586-021-01442-9
(3) https://www.cdc.gov/mmwr/volumes/70/wr/mm7034e4.htm?s_cid=mm7034e4_w
(4) https://www.cdc.gov/mmwr/volumes/70/wr/mm7034e5.htm?s_cid=mm7034e5_w.

[9] https://www.medrxiv.org/content/10.1101/2021.08.24.21262415v1.full.pdf

to the risk of totally avoidable complications that are present in all medical treatments. The complications inflicted when patients are treated unnecessarily thus changes from an unfortunate and unavoidable adverse event (a side effect) into an unambiguous direct effect—a "harm." From that perspective, mandating an unnecessary medical procedure not only violates the medical ethical principle of *beneficence,* it also violates the principle of non-*maleficence.*

46. To coercively mandate, at risk of loss of employment or education opportunities, an unnecessary medical treatment is also a violation of the medical ethical principle of *autonomy*.

47. Moreover, because an unnecessary medical treatment neither stands to benefit the patient, nor society as a whole, and only leaves the door open to totally avoidable adverse events from the medicine, it is also a violation of the medical ethical principle of *justice*.

48. In sum, it is a well-established medical precept, accepted by most reasonable American physicians, that forcing an unnecessary (or even marginally beneficial) medical treatment on any person is a serious violation of basic medical ethics in the United States.

<u>It Is a "Standard of Care" That Persons Recently Convalescent from Transient Viral Infections, Such as SARS-CoV-2, Need Not Be Urgently Vaccinated</u>

49. Under normal circumstances, vaccines are administered 1) prior to the emergence of infections, 2) for the purpose of preventing illness upon exposure to the causal virus. Certainly, most reasonable physicians understand that persons who have recently acquired viral infections are immune and do not need to be vaccinated – at least not within any urgent timeframe. This is true of Influenza, Measles, Mumps, Rubella, and even more persistent infections like Herpes Zoster and HPV.

50. In fact, many physicians, including myself, deem it an unsafe "breach of standard" to indiscriminately vaccinate any recently or concurrently infected and convalesced persons. At the very least, most reasonable physicians consider vaccination of already infected persons to be

unnecessary. This conclusion also now represents conventional wisdom that most of the general public has come to understand over the past century of vaccination practice in the western hemisphere. But, in 2021 during this pandemic viral outbreak, our nation seems to have abandoned this rational approach to vaccination. This is a critical error that is causing unjustifiable harm, on a systemic basis, to a subset of Americans representing a minority of the population.

51. In my previous declaration to the court on behalf of Ms. Norris, I listed studies demonstrating an increased incidence of adverse reactions in previously infected, COVID-recovered persons. Since then, an important study has been published in the prestigious peer-review journal, *Nature*, by Efrati *et al*.[10]

52. In this paper, the authors state very clearly that "short-term severe symptoms that required medical attention were found in 6.8% among the post-infected individuals, while none were found in the infection naïve population." That is, when COVID-recovered persons are vaccinated to "boost" their immunity, a subset of them develop "severe symptoms" for a time requiring medical attention to which their COVID-naïve counterparts are not susceptible.

53. The evidence is that a non-negligible subset of COVID-recovered Americans are, in fact, susceptible to adverse events following vaccination in excess of that which is experienced by COVID-naïve persons. Dr. Zervos's assertion that "there is no evidence from the literature, clinical trial information or published real world experience with vaccines" for an increased risk of adverse events in the previously/recently infected is false.

54. Naturally immune individuals such as Ms. Norris are at heightened risk of side effects as demonstrated by https://www.nature.com/articles/s41598-021-96129-6 and the other studies referred to in my initial declaration to the court. (*See* Noorchashm Decl. ¶ 12-28).

[10] https://www.nature.com/articles/s41598-021-96129-6

55. Additionally, many anecdotal cases of severe harm have been documented and verified in the press wherein concurrently or recently SARS-CoV-2 infected Americans experienced catastrophic complications. These includes the widely publicized cases of Dr. J. Barton Williams of TN, Mr. Everest Romney of UT and Mr. Christopher Sarmiento of NM. These individuals all had verified recent COVID-19 infections at the time of their vaccination, which triggered their complications or deaths.

56. As a result, it is my professional opinion as a physician, immunologist and public health advocate that there is a non-negligible risk of potentially irreversible harm to Ms. Jeanna Norris (and the class of Americans in her situation), if she were to undergo COVID-19 vaccination in light of her prior recent infection within the past year. This risk is only acceptable if: 1) she willingly accepts it for herself, and 2) leaving her unvaccinated would pose a risk of harm to herself and the broader society, above that posed by "fully-vaccinated" COVID-naïve persons who are relieved of all restrictions by MSU and the state. Neither of those scenarios exist here.

I hereby declare under penalty of perjury under the laws of the United States of America that the following is true and correct (28 U.S.C. § 1746):

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Hooman Noorchashm MD, PhD